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Declaration under Rule 4.17:

— *of inventorship (Rule 4.17(iv)) for US only*

Published:

— *with international search report*
— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: RECOMBINANT IMMUNOTOXIN AND USE IN TREATING TUMORS

(57) Abstract: Immunotoxins are disclosed that include a toxin, a variable region of a heavy chain of a monoclonal antibody that binds the antigen specifically bound by monoclonal antibody 8H9, and a variable region of a light chain of the monoclonal antibody that binds the antigen specifically bound by monoclonal antibody 8H9 and effector molecule. These immunotoxins include scFv and dsFv of monoclonal antibody 8H9. The immunotoxins are of use for the treatment of tumors.

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/38227

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : C07K 16/00; C12P 21/08; C07H 21/04; A61K 39/395;

US CL : 530/387.1, 387.3, 387.7, 388.1, 388.8, 391.7; 536/23.53; 424/133.1, 135.1, 138.1, 141.1, 183.1

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 530/387.1, 387.3, 387.7, 388.1, 388.8, 391.7; 536/23.53; 424/133.1, 135.1, 138.1, 141.1, 183.1

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	MODAK, S., et al. Monoclonal antibody 8H9 targets a novel cell surface antigen expressed by a wide spectrum of human solid tumors. Cancer Research. 15 May 2001, Vol. 61, pages 4048-4054, see entire document, especially page 4049, left column, page 4050 and 4052, right column.	1, 9, 21. ----- 2-3, 5, 22-37.
Y	US 5,608,039 A (PASTAN et al) 04 March 1997 (04.03.1997), see columns 3, 9-11 and 19-20.	2-3, 5, 21-37.
X	JUHL H. et al. Additive cytotoxicity of different monoclonal antibody-cobra venom factor conjugates for human neuroblastoma cells. Immunobiology. 1997, Vol. 197, pages 444-459. See entire document, especially page 447, Figures 4-6 and pages 455-456.	1, 9, 21, 24-25, 31. ----- 2-3, 5, 22-37.
Y	US 2003/0103963 A1 (CHEUNG) 05 June 2003 (05.06.2003), see entire document, especially page 5, left column, and Figures 33-34.	1-3, 5-7, 9, 21. ----- 8, 10-12, 14, 16-20, 22-37.
P, X		
—		
P, Y		

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier application or patent published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

18 July 2004 (18.07.2004)

Date of mailing of the international search report

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/38227

Box I Observations where certain claims were found unsearchable (Continuation of Item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claim Nos.: 38
because they relate to subject matter not required to be searched by this Authority, namely:
Claim 38 is a non-statutory "use" claim under 35 U.S.C. 101.
2. ☐ Claim Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to
such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claim Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule
6.4(a).

Box II Observations where unity of invention is lacking (Continuation of Item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all
searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite
payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search
report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report
is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

☐
☐

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

PCT/US03/38227

Continuation of B. FIELDS SEARCHED Item 3:

WEST, Medline, Biosis, cancerlit, EMBASE, CAPLUS, Biotechno, Geneseq, issued patents, published applications, PIR 78, Swissprot, SPTREMBL.

Search terms: immunotoxin, PE or pseudomonas exotoxin, 8H9, antibody, single-chain antibody, SEQ ID NOS:3, 7 and 8, inventor search.